

Draft

**Supplemental Environmental Impact Statement
for the
International Boundary and Water Commission
South Bay International
Wastewater Treatment Plant
Long-Term Treatment Options**

Volume I

U.S. International Boundary and Water Commission
and
U.S. Environmental Protection Agency

Prepared by



January 1998

**Draft Supplemental Environmental Impact Statement
for the
International Boundary and Water Commission
South Bay International Wastewater Treatment Plant
Long-Term Treatment Options
January 1998**

Based on the 1994 Final Environmental Impact Statement and Record of Decision, the federal lead agencies decided to construct a secondary activated sludge wastewater treatment facility and ocean outfall. In 1996, the agencies decided to operate the South Bay International Wastewater Treatment Plant (SBIWTP) as an advanced primary plant on an interim basis until the end of 2000. This decision was documented in a Supplemental Environmental Impact Statement for Interim Operation, and a Record of Decision in 1996. The SBIWTP became operational in 1997 as an advanced primary plant. The South Bay Ocean Outfall is under construction and is expected to be completed in 1998. The purpose of the project is to provide new wastewater management facilities to safeguard the public health, environment, public beaches, water quality, and economy of San Diego, California. In conjunction with actions taken by Mexico, this project would minimize dry-weather flow of untreated sewage into the United States from the Tijuana Municipality, Baja California, Mexico. Such flows have caused chronic and substantial pollution in the Tijuana River Valley National Estuarine Research Reserve, in coastal areas used for agriculture and public recreation, and in areas designated as critical habitat for federal- and state-listed endangered species.

The purpose of this Supplemental Environmental Impact Statement for Long-Term Treatment Options is to reevaluate treatment options for the SBIWTP by assessing potential environmental consequences associated with the construction and implementation of these options. The following are the treatment alternatives evaluated in this SEIS: (1) Activated Sludge/No Action, (2) Activated Sludge with Flow Equalization Basin, (3) Activated Sludge with Expanded Capacity, (4) Completely Mixed Aerated System at Hofer Site, (5) Advanced Integrated Pond System at Spooner's Mesa Site, (6) Advanced Primary Only, and (7) Partial Secondary Treatment.

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Appendix

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B Engineering Studies

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- G5 Transcript of Public Meeting, February 12, 1997
- G6 Additional Evaluation Criteria

Executive Summary

Purpose of the Document

The purpose of this *Draft Supplemental Environmental Impact Statement for the International Boundary and Water Commission South Bay International Wastewater Treatment Plant Long-Term Treatment Options* (Long-Term SEIS or SEIS) is to reevaluate long-term treatment options for the South Bay International Wastewater Treatment Plant (SBIWTP). Additional information has become available and new circumstances have appeared that warrant a new consideration of the long-term treatment options for the SBIWTP. These new factors include increasing budgetary constraints, a need for consideration of environmental impacts of peak flows, an evaluation of additional technical information on the feasibility of secondary treatment pond systems, and the incorporation of new technical information on the Mexican wastewater discharges.

The federal lead agencies for the SEIS are the International Boundary and Water Commission, United States Section (USIBWC) and the U.S. Environmental Protection Agency (EPA). The following treatment alternatives are evaluated in this SEIS: (1) Activated Sludge/No Action, (2) Activated Sludge with Flow Equalization Basin, (3) Activated Sludge with Expanded Capacity, (4) Completely Mixed Aerated System at Hofer Site, (5) Advanced Integrated Pond System at Spooner's Mesa Site, (6) Advanced Primary Only, and (7) Partial Secondary Treatment.

On the basis of the *Final Environmental Impact Statement for the International Boundary and Water Commission International Wastewater Treatment Plant and Outfall Facilities* (RECON, 1994 Final EIS) and the Record of Decision (ROD) for the SBIWTP, the federal lead agencies decided to construct a secondary wastewater treatment plant with activated sludge and an ocean outfall. The first phase of the SBIWTP, the advanced primary phase, became operational in 1997 in order to provide treatment as quickly as possible. The South Bay Ocean Outfall (SBOO) is currently under construction and is expected to be completed in September 1998.

The purpose of the SBIWTP is to provide wastewater management facilities to safeguard the public health, environment, public beaches, water quality, and economy of south San Diego County, California, and Tijuana, Baja California, Mexico. In conjunction with actions taken by Mexico, this project will minimize dry-weather flow of untreated sewage from the Tijuana Municipality, Baja California, Mexico, into the United States. Untreated wastewater flows have caused chronic and substantial pollution in the Tijuana River valley, Tijuana River National Estuarine Research Reserve, coastal areas used for agriculture and public recreation, and areas designated as critical habitat for federal- and state-listed endangered species. The SBIWTP would also improve marine water quality near Tijuana, Mexico by reducing the amount of untreated wastewater currently being discharged near Mexico's San Antonio de los Buenos Wastewater Treatment Plant.

Project Setting

The physical setting and the previous environmental review of the SBIWTP are summarized below and discussed in detail in Section 1.3 of this Draft SEIS.

Physical Setting

The SBIWTP occupies approximately 75 acres (30.4 hectares [ha]) in San Diego County in the United States on the border between the United States and Mexico. The facility is located directly north of Tijuana, Mexico, with an intervening 300-foot (91-meter [m]) buffer of land between the Mexican border and the SBIWTP facilities in the United States. The project setting is shown in Figure ES-1.

As a result of Tijuana's rapid and continued population growth and the limitations of local wastewater collection, conveyance, and treatment capacity in Mexico, the Tijuana River valley and near-shore coastal waters of the United States and Mexico have been contaminated.

The Tijuana River basin, in which a significant portion of the Tijuana Municipality is located, drains to the northwest. Any release of unsewered wastewater follows this natural drainage. Treated and untreated wastewater is also discharged to near-shore ocean waters in Mexico, 5.6 miles (9 kilometers [km]) south of the international border. To address these conditions, the United States and Mexico have entered into binational agreements to construct and operate new facilities in both countries to collect, treat, and dispose of wastewater. One of these facilities is the SBIWTP.

The SBIWTP is located in the Tijuana River valley in the Tijuana River watershed. Both the Tijuana River estuary and the Pacific Ocean lie west and downstream of the project site. The closest major U.S. roadway is Interstate 5 (I-5), which is approximately 1.5 miles (2.4 km) from the SBIWTP located off Dairy Mart Road and Monument Road in the community of San Ysidro.

On the United States side of the border, the area is sparsely populated. Most of the major development is north of I-5 in the City of San Diego and west of I-5 in Imperial Beach. The areas south and southwest of I-5, where the SBIWTP and the Hofer Site are located, are largely undeveloped. Similarly, the area surrounding Spooner's Mesa is largely undeveloped and sparsely populated. The SBIWTP, Hofer site, and Spooner's Mesa site are the locations of the alternatives analyzed in this SEIS (see Figure ES-1).

In the United States, the main feature of this area, other than the SBIWTP facilities, is natural open space including the Tijuana River Valley Regional Open Space Park. Agriculture, ranches, and quarries occupy private lands. To the west of the SBIWTP is a public coastal recreation area, Border Field State Park. The Imperial Beach Naval Air Station and the City of Imperial Beach are northwest of the SBIWTP. The western Tijuana River valley is federally designated as the Tijuana River National Estuarine Research Reserve.

Insert Figure

ES-1 Site Location Map and United States Facilities

In contrast to the setting of the SBIWTP in the United States, Tijuana, Mexico, is a major urban area. The 1996 population was estimated at about 1.1 million. Tijuana has a growing industrial sector that includes about 2,500 industrial plants.

As agreed upon by Mexico and the United States in Treaty Minute 283 (see Section 1.2.3) of the binational International Boundary and Water Commission (IBWC), the SBIWTP facilities will treat an average of 25 mgd (1,095 liter per second [L/s]) of wastewater from Tijuana with disposal to the ocean via the SBOO.

In the 1994 Final EIS, these facilities were to include the following:

- Advanced primary treatment at the SBIWTP (construction completed in 1997)
- Activated sludge secondary treatment at the SBIWTP (designed, but long-term treatment options are being considered in this SEIS)
- Facilities for capturing and conveying wastewater flows from Stewart's Drain, Silva Drain, Canyon del Sol, Smuggler Gulch, and Goat Canyon (scheduled for completion in early 1998)
- Use of Mexico's existing dry-weather collector in the Tijuana River (completed in 1991)
- The South Bay Land Outfall (SBLO) (completed in 1993) which connects to the SBOO (under construction and scheduled for completion in 1998)

Dry-weather river flows are collected and diverted to the collection system in Tijuana. If any wastewater-contaminated flows from Mexico enter the United States through Goat Canyon, Smuggler Gulch, Silva Drain, Stewart's Drain, or Canyon del Sol, these flows will be captured by USIBWC facilities and routed to the SBIWTP for treatment. Discharge of treated effluent to the ocean will be through the SBOO. It is intended that the SBOO will convey effluent from the SBIWTP and from the City of San Diego's proposed Otay and South Bay treatment plants. The SBOO is jointly owned by the City of San Diego and the federal government.

Previous Environmental Review

The SBIWTP has been the subject of extensive environmental review. The Draft and Final Environmental Impact Statements for the International Boundary and Water Commission International Wastewater Treatment Plant and Outfall Facilities (RECON, 1991 and 1994) were prepared for the construction of a secondary wastewater treatment plant at the Dairy Mart Road site with discharge to the ocean through the SBOO. The Draft EIS was released in May 1991 and, after subsequent review, the Final EIS was released in February 1994. The EIS identified a 25-mgd ((1,095 L/s) secondary activated sludge treatment plant at the Dairy Mart Road site as the Preferred Alternative. The engineering design was prepared so that advanced primary treatment facilities could be constructed in advance of the activated sludge phase as a way to provide treatment to sewage flows as quickly as possible.

Prior to the operation of the advanced primary plant, the Draft and Final Supplemental Environmental Impact Statements for the International Boundary and Water Commission International Wastewater Treatment Plant Interim Operation (Interim Operation SEIS; RECON, September 1996 and November 1996) were prepared. The Interim Operation SEIS evaluated proposed changes to operate the SBIWTP as an advanced primary treatment

facility on an interim basis prior to completing the alternative that is selected in this Long-Term SEIS. The Selected Alternative in the Interim Operation ROD was a phased approach to operate the SBIWTP as an advanced primary facility with discharge through the existing emergency connection to the City of San Diego's Point Loma treatment plant until the SBOO is completed in 1998. The Interim Operation SEIS covers the operation of the SBIWTP until 2001.

Project Alternatives

The project alternatives for this Long-Term SEIS are summarized below. The alternatives are discussed in more detail, including the proposed new facilities for each alternative, in Chapter 1, Sections 1.5.1 through 1.5.4.

Activated Sludge/No Action Alternative

For the Activated Sludge/No Action alternative (No Action alternative), the SBIWTP would have the same activated sludge secondary treatment as selected in the 1994 Final EIS. This alternative assumes that Mexico will manage the wastewater flows to provide a constant flow of 25 mgd (1,095 L/s) to the SBIWTP; thus, the constant flow through both primary and secondary treatment would be 25 mgd (1,095 L/s). Mexico would be responsible for peak flows above 25 mgd (1,095 L/s). Construction and operation of these facilities were approved in the 1994 Final EIS and ROD for the SBIWTP project.

The proposed new activated sludge and related facilities are sized to treat an average monthly organic loading of 370 milligrams per liter (mg/L) 5-day biochemical oxygen demand (BOD₅), 350 mg/L total suspended solids (TSS), and an average flow of 25 mgd (1,095 L/s). BOD₅ and TSS would be reduced to 19 mg/L each in the effluent from this alternative.

SBIWTP with Activated Sludge Secondary Treatment

This alternative comprises activated sludge secondary treatment at the SBIWTP to accommodate an average flow of 25 mgd (1,095 L/s) with options for treating peak flows. The first option involves the construction of a flow equalization basin to accommodate peak flows up to 50 mgd (2,190 L/s). The second option under this alternative involves an increase in the capacity of the secondary facility at the SBIWTP to treat peak flows up to 50 mgd (2,190 L/s).

Activated Sludge with Flow Equalization Basin

This option would result in an average flow of 25 mgd (1,095 L/s) into the SBIWTP with a flow equalization basin to accommodate peak flow storage and subsequent off-peak discharge to the secondary activated sludge facility. A flow equalization basin capable of storing advanced-primary-treated peak flows greater than 25 mgd (1,095 L/s) would be constructed for this alternative. A storage volume of 7 million gallons (MG) would be required. Accordingly, the average flow through both the advanced primary and secondary portions of the plant would be 25 mgd (1,095 L/s). Flow through the advanced primary portion of the plant is projected to follow the identified daily flow variations with a low flow from 3.5 mgd (153 L/s) to a peak flow of 50 mgd (2,190 L/s). Before this variable flow enters the secondary facility, it will be equalized by the basin to a steady rate of

25 mgd (1,095 L/s). The flow equalization basin would be located within the existing footprint of the SBIWTP.

Other than the flow equalization basin, construction and operation of these facilities were addressed in the 1994 Final EIS and ROD. (A smaller flow equalization basin sized at 5.5 mgd, however, was considered as part of the 1997 Final Interim Operation SEIS.) These proposed new activated sludge and related facilities are sized to treat a monthly average organic loading of 370 mg/L BOD₅ and 350 mg/L TSS, and an average flow of 25 mgd (1,095 L/s). The equalization basin facilities are designed to equalize flows to a constant 25 mgd (1,095 L/s). The activated sludge facilities are designed to provide an effluent quality of 19 mg/L BOD₅ and 19 mg/L TSS.

Activated Sludge with Expanded Capacity

For this alternative, the secondary facility would be sized to treat peak flows up to 50 mgd (2,190 L/s). The number of secondary clarifiers would be doubled from 8 to 16 to accommodate these peaks. Thus, an average flow of 25 mgd (1,095 L/s) with peak flows up to 50 mgd (2,190 L/s) will be treated by both the advanced primary and secondary facilities. The proposed new facilities would be located on the existing footprint of the SBIWTP and on a portion of the Hofer site.

Construction and operation of these facilities were addressed in the 1994 Final EIS and ROD. These proposed new activated sludge and related facilities are sized to treat an average monthly organic loading of 370 mg/L BOD₅, 350 mg/L TSS, and an average flow of 25 mgd (1,095 L/s). These facilities are designed to treat peak flows of 50 mgd (2,190 L/s). The activated sludge facilities would be designed to provide an effluent quality of 19 mg/L BOD₅ and 19 mg/L TSS.

SBIWTP with Ponds Secondary or Secondary-Equivalent Treatment

This alternative includes two treatment pond options capable of treating a 25-mgd (1,095 L/s) average flow with peaks up to 50 mgd (2,190 L/s). In this alternative, conventional primary treatment, as opposed to advanced primary treatment, would be provided at the SBIWTP to optimize the pond processes. In conventional primary treatment, settling would occur without chemicals to assist that process. The primary effluent would be the influent to the pond systems. The wastewater would be treated in the pond systems to a secondary or secondary-equivalent level. One option under this alternative is a Completely Mixed Aerated (CMA) system at the Hofer site. The second pond treatment option is the Advanced Integrated Pond System (AIPS) at the Spooner's Mesa site.

Completely Mixed Aerated System at Hofer Site

This option would use a CMA process with fully mixed ponds preceded by anaerobic digester pits with surface aeration. The purpose of the digester pits is to remove the solids from the wastewater, including heavy metals and toxic organic compounds.

These proposed new facilities are sized to treat an average monthly organic loading of 370 mg/L BOD₅, 350 mg/L TSS, and an average flow of 25 mgd (1,095 L/s) with a 50-mgd (2,190 L/s) peak. The CMA system is designed to provide secondary effluent quality of 20 mg/L BOD₅ and 20 mg/L TSS.

Advanced Integrated Pond System at Spooner's Mesa Site

The proposed new facilities for the AIPS option at Spooner's Mesa would require ponds with submerged digester pits aerated by both algae and mechanical aerators. As with the CMA ponds, the purpose of the digester pits is to remove the solids from the wastewater, including heavy metals and toxic organic compounds.

These proposed new facilities are sized to treat an average monthly organic loading of 370 mg/L BOD₅, 350 mg/L TSS, and an average flow of 25 mgd (1,095 L/s) with a 50-mgd (2,190-L/s) peak. The AIPS system would be designed to provide secondary-equivalent effluent quality of 30 to 45 mg/L BOD₅ and 65 mg/L TSS. This option would require new construction and grading for road access and for new facilities at the Spooner's Mesa site, which is outside of the existing facilities' footprint considered in the 1994 Final EIS.

SBIWTP with Less than Full Secondary Effluent

This alternative involves two options for operating the SBIWTP with varying levels of treatment of the wastewater that comes from Tijuana. The first option involves the use of advanced primary treatment only. The second option provides advanced primary treatment of the total flow, followed by activated sludge secondary treatment for only a part of the primary effluent. This second process creates a blend of secondary and advanced primary effluent that would be discharged through the SBOO. Both options under this alternative would treat average flows of 25 mgd (1,095 L/s) and peaks above this amount up to 50 mgd (2,190 L/s). These alternatives assume that the United States would treat and dispose of these peak flows. These options would require a waiver of secondary treatment standards in the Clean Water Act.

Advanced Primary Only

Under this option, the SBIWTP would operate using advanced primary treatment for average flows of 25 mgd (1,095 L/s) and peaks up to 50 mgd (2,190 L/s) with no secondary treatment.

This option would not require any new facilities at the SBIWTP. The existing advanced primary facilities would treat an average monthly organic loading of 370 mg/L BOD₅, 350 mg/L TSS, and an average flow of 25 mgd (1,095 L/s) with a 50-mgd (2,190-L/s) peak. The advanced primary treatment is designed to provide an effluent quality of 204 mg/L BOD₅ and 88 mg/L TSS.

Partial Secondary Treatment

This alternative would use the SBIWTP with activated sludge facilities sized to treat a 25-mgd (1,095 L/s) maximum flow. Peaks over 25 mgd (1,059 L/s) and up to 50 mgd (2,190 L/s) would receive advanced primary treatment only. The average flow to the SBIWTP would be 25 mgd (1,095 L/s), but the average flow through the secondary process would be only 18 mgd (788 L/s) because the capacity of the secondary treatment facilities cannot handle flows greater than 25 mgd (1,095 L/s) at any given instant.

The proposed facilities would be the same as for the No Action alternative. Construction and operation of these facilities were addressed in the 1994 Final EIS and ROD. For an average month, these proposed activated-sludge and related facilities are sized to treat an organic loading of 370 mg/L BOD₅, 350 mg/L TSS, and an average flow of 25 mgd

(1,095 L/s). These facilities are not designed to treat peak flows above 25 mgd (1,095 L/s). Peak flows of 50 mgd (1,290 L/s) would enter the SBIWTP under this option but the activated-sludge facilities would not treat more than 25 mgd (1,095 L/s) of flow. Thus, all flows above 25 mgd (1,095 L/s) would be bypassed around the activated-sludge facilities, resulting in an average flow through the activated-sludge facilities of 18 mgd (788 L/s). As a result, the final effluent quality would represent a blend of advanced primary effluent and activated-sludge treated effluent, yielding a BOD₅ of about 71 mg/L and TSS of about 39 mg/L.

Alternatives Considered but Eliminated from Further Consideration

The alternatives considered but eliminated from further consideration are: (1) Water Reclamation, (2) Tertiary Treatment, and (3) Long-term Use of the Parallel Conveyance and Pump Station. These alternatives were rejected because they do not meet the objectives of providing a long-term treatment option or because they are not technologically feasible for the site conditions at the SBIWTP. These eliminated alternatives are discussed in detail in Section 1.6 of this Draft SEIS.

Summary of Impacts and Mitigation

This SEIS has been prepared to evaluate the long-term operations of the SBIWTP by analyzing the direct, indirect, adverse, and beneficial impacts to the environment from the project alternatives in accordance with the National Environmental Policy Act (NEPA). This SEIS also identifies mitigation measures that would reduce any significant adverse impacts and summarizes any potential impacts after mitigation.

The design average capacity of all the alternatives is based on Treaty Minute 283, which is discussed in Section 1.2.3.2 of this SEIS. All identified impacts to Mexico are mitigable. This section summarizes for the United States: (1) areas of no significant impact, (2) areas of no significant impact after mitigation, and (3) impacts that cannot be mitigated. All impacts and mitigation measures are outlined in Table ES-1 at the end of this Executive Summary, and a detailed discussion is provided in Chapter 3 of this Draft SEIS. After the implementation of mitigation measures, no cumulative impacts are anticipated to be significant.

Areas of No Significant Impact

Detailed analyses conducted for this SEIS have identified no significant environmental impacts in the following environmental resource areas (the location of the detailed discussion of each area in this SEIS is noted in parentheses).

- Socioeconomics and Environmental Justice (3.6)
- Scenic, Visual, and Recreational Resources (3.8)
- Noise (3.11)
- Energy Consumption (3.12)

Areas of No Significant Impact after Mitigation

After implementation of specific recommended mitigation measures, no significant environmental impacts are expected in the resource areas listed below (the location of the detailed discussion of these areas in this SEIS is noted in parentheses). The inclusion of a resource area in this section does not indicate that impacts are associated with all alternatives.

- Surface Water and Groundwater Quality (3.1.2)
- Terrestrial Biological Resources (3.2.2)
- Cultural and Paleontological Resources (3.3)
- Geology (3.10)

Areas of Significant Impact that Cannot be Mitigated

Impacts that cannot be mitigated to below significance are marine water quality, marine biological resources, land use, traffic and transportation, public health and safety, and air quality. (The location of the detailed discussion of each resource area in this SEIS is noted in parentheses.) The inclusion of a resource area in this section does not indicate that impacts are associated with all alternatives.

Marine Water Quality (Section 3.1.3)

Compliance with California Ocean Plan Standards

Marine water quality parameters were analyzed in this SEIS using an ocean modeling evaluation to determine compliance with the California Ocean Plan standards (see Appendix C of this SEIS). All of the secondary treatment alternatives were found to be in compliance with the California Ocean Plan standards for Table B toxic compounds. For the Advanced Primary Only alternative, the ocean model identified copper and DDT as exceeding the standards. DDT was also identified as exceeding the standard by the Partial Secondary Treatment alternative. As a result of these exceedances, the toxicity standard could also be exceeded. Note that in contrast to these results from the ocean model, effluent data collected from the SBIWTP to date, albeit limited, does not identify an exceedance of these compounds. Effluent data will continue to be collected from the SBIWTP and will be used to assess the ocean modeling evaluation.

Toxic Spikes

Although Tijuana is currently developing a pretreatment program, there exists a potential for unusually high concentrations of toxic compounds (toxic spikes) to enter the SBIWTP from time to time. It is possible that a toxic spike could cause an exceedance of a Table B limit, as well as the toxicity standard, because of the high concentration of a compound passing through the treatment plant without receiving adequate treatment. This occurrence is more likely to occur from the Advanced Primary Only and Partial Secondary Treatment alternatives because of the lower levels of treatment. Toxic spikes can upset the secondary processes as well, reducing treatment for a period and exceeding discharge limits as a result. Of the secondary alternatives, the pond treatment systems would provide the best management of toxic spikes because of the anaerobic digester pits and the large water volume that dilutes the spike and minimizes an upset.

The proposed mitigation to address the impacts to the marine environment from Table B compounds and toxic spikes, as well as to ensure the overall performance of the SBIWTP, is

the successful implementation of a pretreatment program in Tijuana. The pretreatment program should target those pollutants most likely to exceed Ocean Plan standards, as well as provide an overall reduction in pollutants from entering the SBIWTP. A more detailed discussion regarding the status of Mexico's pretreatment program is provided in Appendix A2.

Coliform Standards

In terms of coliform standards, all the alternatives would be in compliance with U.S. and California standards, except for the options where the effluent would be less than the secondary treatment level (Advanced Primary Only and Partial Secondary Treatment). For the Advanced Primary Only alternative, there would be a 16 percent chance of noncompliance at one monitoring station (located in a kelp bed) during 2 months out of the year, although it is possible that noncompliance could occur during several other months as well. For the Partial Secondary Treatment alternative, the potential for noncompliance with coliform standards is similar to the Advanced Primary Only alternative, although the potential for noncompliance is expected to be lower and not as frequent.

Chlorination/dechlorination could be used to reduce coliform levels. Impacts to aquatic life resulting from disinfection with chlorination would be infrequent and of short duration, and therefore are not expected to be significant because disinfection would be done only on an as-needed basis. Mitigation for the impacts associated with exceedances of coliform standards includes: (1) notification to the San Diego County Health Department; (2) additional monitoring; (3) analysis of the distribution of coliform in order to determine its source; and (4) the preparation of a disinfection plan to examine alternative disinfection methods, if the need for disinfection is greater than predicted by the ocean model. Because the implementation of the mitigation (disinfection) would take place after exceedances occurred, there is a potential for significant impacts to marine water quality.

In addition, the ocean modeling evaluation identified a potential exceedance of the coliform standards in the United States from the international border up to the mouth of the Tijuana River from raw sewage discharges from Mexico's San Antonio de los Buenos Wastewater Treatment Plant. These predictions have been confirmed by sampling data collected by the City of San Diego as part of the EPA and USIBWC baseline sampling program. Although all alternatives being evaluated in this SEIS would reduce the amount of raw flows being discharged in Mexico, the discharge of raw sewage could continue to have a significant impact on U.S. beaches located near the border.

The above evaluation of these alternatives for marine water quality relies on estimates of flow variability from Mexico, wastewater characteristics, estimates of SBIWTP effluent quality, and modeling of the effects of the ocean discharges for each of the SEIS alternatives. The estimates and modeling conducted for the SEIS are conservative.

Marine Biological Resources (Section 3.2.3)

An impact to marine biological resources would be considered significant if a toxicity risk to marine benthic organisms and/or fish is present outside the 100:1 dilution zone. The effluent solids (sediment) discharged from the Advanced Primary Only alternative are predicted to contain concentrations of DDT at levels that would present a risk beyond the dilution zone and, therefore, a significant impact. Marine biological risks outside the dilution zone are not associated with the effluent water or solids from the other alternatives.

Land Use (Section 3.4)

Significant, unmitigable land use impacts could occur as a result of implementing the AIPS at Spooner's Mesa alternative. The construction of treatment ponds would not be consistent with either (1) a proposed, but not yet approved, park planned for Spooner's Mesa or (2) the City of San Diego's Subarea Plan for the Multi-Species Conservation Program. There is no significant impact in terms of land use for the other alternatives.

Traffic and Transportation (Section 3.5)

Significant, unmitigable traffic impacts could occur during construction of the CMA System at Hofer Site alternative because of the excess amount of excavated material estimated to be generated and transported offsite with this alternative. Although significant, this impact is temporary, of short duration, and could be mitigated if a balanced cut-and-fill plan were found to be feasible.

Public Health and Safety (Section 3.7)

The sludge from all alternatives would be in compliance with the total threshold limit concentration (TTL) regulatory limit for hazardous waste set by California Title 22. There is a possibility, however, that sludge from all alternatives could potentially exceed the soluble threshold limit concentration (STLC) regulatory limit for hazardous waste also set by California Title 22. The potential for generating hazardous sludge is the same for all the activated sludge alternatives (i.e., the No Action, Activated Sludge with Flow Equalization Basin, Activated Sludge with Expanded Capacity, and the Partial Secondary alternatives). For the CMA at Hofer Site alternative, sludge would be generated by two processes: the conventional primary system and the secondary pond system. The conventional primary system would produce 94 percent by volume of the sludge generated by this alternative. This sludge is not expected to be hazardous. The remaining sludge produced in the ponds (6 percent by volume) is likely to exceed STLC hazardous waste limits. The AIPS at Spooner's Mesa alternative is expected to produce about the same quality and quantity of sludge as produced by the CMA at Hofer Site alternative. The Advanced Primary Only alternative is less likely to produce hazardous sludge than are the activated sludge and the ponds treatment alternatives.

Air Quality (Section 3.9)

Odor control systems are installed on the headworks and sludge handling facilities of the SBIWTP. Even with these odor-control systems in operation, episodic and localized emissions could occur for all the alternatives except the Advanced Primary Only alternative. Episodic odors could result from toxic spikes that upset the secondary treatment processes. The impact would be infrequent and of short duration. The impact could be mitigated by Mexico's pretreatment program. This program, however, has just recently been initiated, and until the sampling results indicate reductions in emissions, the pretreatment program cannot be relied upon for mitigation of air quality impacts.

Other Criteria Considered

In addition to evaluating the alternatives using the significance standards in Chapter 3, the lead agencies considered additional criteria that were gathered as part of a 3-year public outreach effort. (See Appendix G6 for a detailed discussion.) In addition to the environmental criteria already considered in the SEIS, the public cited technical feasibility,

nuisance odors, acreage, timeliness, expandability, and cost as important criteria for consideration. After reviewing the criteria, the lead agencies found cost, expandability, acreage, and timeliness to be the most distinguishing factors when analyzing the treatment options. A comparison of the SEIS alternatives using these additional criteria is given in Table ES-2 at the end of this Executive Summary.

Cost

The cost of the alternatives is summarized below in Table ES-3 from least to most costly.

TABLE ES-3
CAPITAL, OPERATING, AND PRESENT WORTH COST FOR SEIS ALTERNATIVES

Alternative	Capital Cost (\$ millions)	Operating Cost (\$ millions)	40-year Present Worth Cost (\$ millions)
Advanced Primary Only	0	2.1	48
CMA at Hofer Site	21.6	2.9	93.8
Partial Secondary	47.7	4.4	157.8
AIPS at Spooner's Mesa	56.7	5.5	199.6
No Action	66	5.3	200.7
Activated Sludge with FEB	70.1	5.3	206.2
Activated Sludge with Expanded Capacity	75.7	5.3	214.1

Expandability

Expandability was defined as the ability of an alternative to expand its capacity beyond an average 25-mgd (1,095-L/s) dry-weather flow to an average 50-mgd (2,190-L/s) dry-weather flow within the footprint of the SBIWTP and Hofer site. This criterion is different from the acreage criterion in that it assumes the purchase of the Hofer property. The Hofer property is being considered for purchase to allow for long-term expansion of the SBIWTP.

The advanced primary, activated sludge, and AIPS alternatives could all expand beyond an average flow of 25 mgd (1,095 L/s) within the footprint of the existing site (including the Hofer property). The CMA alternative could not be expanded to 50 mgd dry-weather average flow. If expansion were necessary, however, the CMA ponds could be reduced somewhat in size and an activated sludge facility could be constructed within the footprint of the existing SBIWTP and Hofer site. This approach would provide treatment capacity for a 50-mgd (2,190 L/s) dry-weather average flow.

Acreage

Acreage is defined by the amount of land required to construct and operate the long-term treatment options considered in the SEIS. All of the alternatives can be accommodated on the footprint of the SBIWTP site except for the Activated Sludge with Expanded Capacity

alternative and the SBIWTP with Ponds Secondary or Secondary-Equivalent Treatment alternatives. The Activated Sludge with Expanded Capacity and CMA at Hofer Site alternatives would require the purchase of the Hofer property located adjacent to the SBIWTP. The Spooner's Mesa site would have to be purchased for the AIPS at Spooner's Mesa alternative.

Timeliness

Timeliness is defined as the overall time needed to obtain funds, design the facility, purchase the property, perform remediation of the site (if necessary), and construct the project. The Advanced Primary Only alternative could be completed in 3 years, the shortest amount of time required compared to the other alternatives. This time estimate is based on the time that was required to prepare a Clean Water Act (CWA) waiver from secondary treatment for the City of San Diego's Point Loma Wastewater Treatment Plant, which provides advanced primary treatment. The 3-year period includes the time required for collecting ocean monitoring data, preparing the CWA waiver application, and obtaining approval for the waiver. The CMA at Hofer Site alternative would require 3.5 years to complete, including remediation of the Hofer property, if required. The Activated Sludge with Flow Equalization Basin and the Activated Sludge with Expanded Capacity alternatives would each require 4.5 years for additional construction. The AIPS at Spooner's Mesa alternative would take 5.5 years to construct, including land acquisition. At 7.5 years, the Partial Secondary Treatment alternative would take the longest to implement, since the discharge from this alternative would not meet secondary treatment standards. The activated sludge facilities would have to be constructed before the CWA waiver procedures could be initiated through ocean monitoring and preparation of the waiver application.

Preferred Alternative

A Preferred Alternative is not identified in this Draft SEIS. A Preferred Alternative will be selected after the lead agencies have had the opportunity to review the comments on the Draft SEIS. During the 45-day comment period following the release of the Draft SEIS, the lead agencies will make presentations to the Focus Group, local city councils, and other interested parties on the treatment alternatives and their impacts. The Preferred Alternative will be identified in the Final SEIS and a 30-day comment period will be provided.

Agency and Public Participation in Decision-Making

The SEIS has been prepared to evaluate the long-term treatment options for the SBIWTP. The environmental analysis and the other criteria discussed above will be used in decision making by the lead agencies. This SEIS also will be used as an informational document by other federal, state, and local agencies including, but not limited to, the U.S. Fish and Wildlife Service, State Water Resources Control Board, California Coastal Commission, and City of San Diego, in fulfilling their jurisdictional responsibilities, permitting activities, or other cooperation in implementing any future actions taken. The lead agencies prepared and circulated a Notice of Intent (NOI) and a Notice of Availability (NOA). The NOA was published in the *Federal Register* on January 23, 1998. The NOI, the NOA, and other documentation of public outreach during this SEIS process is included in Appendix G.

This Draft SEIS will be available for a 45-day public and agency review period. Requests for information or copies of the SEIS can be directed to *Ms. Elizabeth Borowiec at EPA Region IX, Water Division, 75 Hawthorne Street, San Francisco, CA 94105, 415/ 744-1165*; or *Mr. Charles Fischer at the USIBWC San Ysidro Office, 2225 Dairy Mart Road, San Diego, CA 92173, 619/662-7600*. Copies of the SEIS and supporting documents also have been made available at the following local library branches in the vicinity of the SBIWTP:

San Diego Central Library
Reference Section
820 East Street
San Diego, CA 92101

National City Public Library
Reference Section
200 East 12th Street
National City, CA 91950

San Ysidro Library
Reference Section
101 West San Ysidro Boulevard
San Ysidro, CA 92173

Coronado Library
Reference Section
640 Orange Avenue
Coronado, CA 92118

Imperial Beach Library
Reference Section
810 Imperial Beach Boulevard
Imperial Beach, CA 91932

Chula Vista Library
Reference Section
365 F Street
Chula Vista, CA 91910

Otay Mesa Branch Library
Reference Section
3003 Coronado Avenue
San Diego, CA 92154

During the public and agency review period, the USIBWC and EPA will review written comments to the Draft SEIS and oral comments made during a public hearing. A Final SEIS will then be prepared, including any revisions to the Draft SEIS and responses to comments on the Draft SEIS. The Final SEIS will be circulated for a 30-day public review period.

The USIBWC and EPA then will prepare a ROD that will identify the selected alternative. This will include consideration of environmental factors and other factors that were important in arriving at a decision.

TABLE ES-1
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

WATER RESOURCES (SEIS Section 3.1)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner’s Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
SURFACE WATER AND GROUNDWATER (SEIS Section 3.1.2)								
Impacts	Insignificant increase in site runoff due to a minor increase in impervious surface area. However, no impacts to beneficial uses of the Tijuana River are anticipated.	Same as No Action.		Same as No Action, with the following additional impact: <ul style="list-style-type: none">potential for erosion and sediment impacts downstream and to the Tijuana River estuary from excavation activities.	Same as No Action, with the following additional impact: <ul style="list-style-type: none">potential for erosion and sediment impacts to Goat Canyon, Smuggler Gulch, and Tijuana River estuary from excavation/constructi on activities.	No adverse impacts because no construction or change in operations would occur.	Same as No Action.	Mexico’s surface water and groundwater resources are upgradient from the SBIWTP and would not be impacted.
Mitigation	Project design features that would mitigate project impact include: <ul style="list-style-type: none">desilting any water collected during construction prior to discharge;periodic testing of dewatering effluent in compliance with waste discharge requirements;complying with California General Permits for Storm Water Discharges Associated with Construction Activities and Industrial Activities;implementing Best Management Practices to minimize storm water pollutants during construction; andproviding redundant process equipment, a backup power supply, and an emergency monitoring alarm system for operations.	Same as No Action.		Same as No Action, with the following additions to project design features: <ul style="list-style-type: none">installing impermeable liners beneath all impoundments to protect groundwater;grading and excavating with appropriate barriers, fences, and collection systems to control erosion and sedimentation;restoring temporary disturbance areas; andinstalling monitoring wells or piezometers to detect leaks if they occur.	Same as CMA System at Hofer Site and No Action alternative with the following additions to project design features: <ul style="list-style-type: none">desilting any water collected from dewatering prior to discharge, if necessary;provide and maintain surface runoff control features to minimize erosion and sediment; andinstalling protective works such as silt barriers, fences, and energy dissipaters in the runoff collection and discharge system to prevent scour and downstream siltation.	None required.	Same as No Action.	None required.
Significance After Mitigation	Not significant.	Same as No Action.		Not significant.		Not significant.		Not significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

WATER RESOURCES (SEIS Section 3.1)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner’s Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
MARINE WATER (SEIS Section 3.1.3)								
Impacts	<p>Coliform levels in both treated and untreated wastewater discharged at the shoreline in Mexico would continue to exceed the Ocean Plan standards in the U.S. from the international border to the Tijuana River, and would significantly affect local beaches in the U.S. Polynuclear aromatic hydrocarbon (PAH) concentrations in the wastewater discharge would also significantly exceed Ocean Plan standards.</p> <p>There is a low probability that coliform levels in the effluent from the SBIWTP at San Antonio de los Buenos would exceed receiving water limits. Despite the low probability for fecal coliform levels exceeding Ocean Plan limits in kelp beds, an exceedance would significantly impact divers.</p>	Same as No Action.		<p>Same as No Action, with the following addition:</p> <ul style="list-style-type: none">coliform levels would be reduced, resulting in a beneficial impacts.	<p>Same as No Action, with the following addition:</p> <ul style="list-style-type: none">no exceedances of coliform levels are projected due to the long hydraulic retention time in the system.	<p>Same as No Action, with the following addition:</p> <ul style="list-style-type: none">higher possibility of coliform level exceedance in kelp beds at monitoring stations I39 and I26; andpossibility of copper, DDT, and toxicity exceedance of Ocean Plan limits.	<p>Same as Advanced Primary Treatment Only, with the following additions:</p> <ul style="list-style-type: none">the potential for total coliform non-compliance would not be as frequent and the predicted chance of non-compliance is somewhat lower, but still higher than for the No Action alternative; andthe potential for fecal coliform non-compliance is expected to have a high predicted percentage chance of noncompliance and, therefore, a significant impact; andDDT and toxicity levels may exceed the discharge limit.	<p>No significant impacts have been identified. A beneficial impact will occur in Mexico because of reduced raw wastewater discharges at San Antonio de los Buenos.</p>
Mitigation	<p>If coliform levels exceed limits:</p> <ul style="list-style-type: none">immediately notify City and County of San Diego Department of Environmental Health, Cities of Imperial Beach and Coronado, CRWQCB, and Office of Emergency Services;prepare and implement an emergency	Same as No Action.		No mitigation measures are necessary for discharge through the SBOO.		<p>Same as No Action, with the following addition:</p> <ul style="list-style-type: none">potential exceedances of copper, DDT, and toxicity would be addressed by pretreatment program in Mexico.		None required.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

WATER RESOURCES (SEIS Section 3.1)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner’s Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
	disinfection plan, using existing chlorination and dechlorination facilities for a duration to be determined by the CRWQCB and County of San Diego Department of Health Services; <ul style="list-style-type: none">perform additional monitoring as required by the NPDES permit;analyze the distribution of coliform in the water to determine its source; andif the need for disinfection is greater than predicted by the ocean model, initiate a study to examine alternative disinfection methods.							
Significance After Mitigation	Impacts by discharge at San Antonio de los Buenos in Mexico could not be mitigated and would remain significant. The impact by coliform exceedance through the SBOO would be mitigated to a level that is less than significant.	Same as No Action.				Same as No Action, with the following additions: <ul style="list-style-type: none">emergency disinfection would minimize the duration of coliform levels, although there is a high frequency for potential noncompliance that is not mitigable, and would remain significant; andpotential copper, DDT, and toxicity exceedances would remain significant until implementation of an effective pretreatment program in Mexico.		Not significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

BIOLOGICAL RESOURCES (SEIS Section 3.2)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner's Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
TERRESTRIAL BIOLOGICAL RESOURCES (SEIS Section 3.2.2)								
Impacts	No new terrestrial impacts identified that were not previously addressed in the 1994 Final EIS.	Same as No Action.	Adverse effects on wildlife are not expected to be significant because of proximity of the site to open space, the lack of native habitat and foraging, the absence of special-status species in the area, and the level of existing disturbance on the site.	Same as Activated Sludge with Expanded Capacity, with the addition of the following: <ul style="list-style-type: none">potential for construction noise and lighting impacts to wildlife, particularly truck traffic noise.	Potential impact due to removal of raptor foraging habitat. Significant impact from the removal of 3.1 acres of coastal sage scrub habitat. Potential for construction noise impacts to coastal California gnatcatcher. Potential impacts to riparian corridor at Smuggler Gulch.	Same as No Action.		The proposed project is not anticipated to affect the terrestrial biological resources within the Tijuana area.
Mitigation	None required for terrestrial resources.	Same as No Action.	Standard construction techniques for reducing noise impacts to the ambient noise environment shall be employed, including noise suppressing mufflers for construction equipment and compliance with local noise control ordinances.	Same as Activated Sludge with Expanded Capacity, with the following addition: <ul style="list-style-type: none">soil hauling by trucks would be limited to periods outside the least Bell's vireo mating season.	Coastal Sage Scrub: <ul style="list-style-type: none">as needed, acquire and preserve similar habitat offsite at a ratio to be determined with USFWS. Riparian Corridor: <ul style="list-style-type: none">obtain a 404 permit and follow the requirements stated therein. During Construction for the Coastal California Gnatcatcher: <ul style="list-style-type: none">implement a program to monitor gnatcatcher behavior;remove coastal sage scrub habitat during non-breeding season only;construction within Spooner's Mesa/ Smuggler Gulch during non-breeding season only;erect noise curtains if levels exceed 60 dB; anduse qualified biologist to observe behavior, submit monthly	Same as No Action.		None required.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

BIOLOGICAL RESOURCES (SEIS Section 3.2)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner's Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
					monitoring reports to USIBWC.			
Significance After Mitigation	The impact to terrestrial biological resources is insignificant.	Same as No Action.	No significant impacts are expected to remain after the implementation of the above mitigation measures.	Less than significant.	Terrestrial impacts after mitigation would be insignificant.	Same as No Action.		Not significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

BIOLOGICAL RESOURCES (SEIS Section 3.2)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner's Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
MARINE BIOLOGICAL RESOURCES (SEIS Section 3.2.6)								
Impacts	Chromium, copper, lead, mercury, nickel, silver, zinc, cyanide, DDT, and HCH were predicted in effluent water and sediment to produce a risk to marine biological resources, but would be considered a less than significant impact because impacts would be limited to the 100:1 dilution zone. Compared to other alternatives, the degree of expected toxicity is intermediate for the No Action alternative.	Same as No Action.	Same as No Action, with the following addition: <ul style="list-style-type: none">the degree of expected toxicity is low for this alternative when compared to other alternatives.	Same as No Action, with the following addition: <ul style="list-style-type: none">the degree of expected toxicity is the lowest of all project alternatives.	Same as No Action, with the following exception: <ul style="list-style-type: none">concentrations of DDT in effluent water is predicted to pose a risk beyond the dilution zone, resulting in a significant impact.this alternative has the greatest degree of expected toxicity, compared to other alternatives.	Same as Advanced Primary Treatment Only, with the following exception: <ul style="list-style-type: none">hazard quotient values for effluent water were not predicted as high as the Advanced Primary Treatment Only, and toxic levels are not predicted to occur outside the 100:1 dilution zone; andthe degree of expected toxicity is high for this alternative as compared to other alternatives.	None of the project alternatives is expected to result in a direct or indirect adverse impact to terrestrial biological resources within the Tijuana area. All of the project alternatives would reduce the amount of treated and untreated wastewater that enters the surf at San Antonio de los Buenos in Mexico, resulting in a beneficial effect.	
Mitigation	Marine toxicity could be mitigated by a pretreatment program in Mexico.	Same as No Action.					None required.	
Significance After Mitigation	The impact to marine biological resources is less than significant.	Same as No Action.				Risk to marine biological resources is considered significant after mitigation because a toxic concentration of DDT was predicted to occur beyond the 100:1 dilution zone.	Same as No Action.	Not significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

CULTURAL & PALEONTOLOGICAL RESOURCES (SEIS Section 3.3)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner’s Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
Impacts	No new cultural or paleontological impacts identified that were not previously addressed in the 1994 Final EIS.	Same as No Action.	Some potential to expose and damage fossils during construction.			Same as No Action.		The proposed project alternatives are not anticipated to affect the cultural or paleontological resources within the Tijuana area.
Mitigation	None necessary.	Same as No Action.	A qualified paleontologist shall be retained to survey the location of the plant site and pipelines, and inspect and salvage any exposed fossils. Any samples collected would be matrix samples for processing through fine screens. Provisions shall be made for the preparation and identification of any fossils before donation to a repository. All fossils shall be donated to an institution with a research interest in the materials. A report confirming the results of the monitoring program shall be submitted to the IBWC.			Same as No Action.		None required.
Significance After Mitigation	No significant adverse impacts would result.	Same as No Action.	Not significant.			Same as No Action.		Not significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

LAND USE (SEIS Section 3.4)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner’s Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
Impacts	No new terrestrial impacts identified that were not previously addressed in the 1994 Final EIS.	No significant impacts.			Significantly inconsistent with existing land use plans and policies for Spooner’s Mesa. Development of ponds would preclude mining of the mineral deposit or interim agricultural use. The alternative is not consistent with the City of San Diego’s Subarea Plan for the Multi-Species Conservation Program, which proposes land preservation for the site.	Same as No Action.		None of the project alternatives is expected to result in direct or indirect adverse impacts to terrestrial biological resources within the Tijuana area.
Mitigation	None necessary.	Same as No Action.			The alternative would necessitate an amendment to the Border Highlands Local Coastal Program and the City of San Diego’s Subarea Plan for the Multi-Species Conservation Program. Would require a finding of consistency with the California Coastal Act.	Same as No Action.		None required.
Significance After Mitigation	No significant adverse impacts would result.	Same as No Action.			If amendments to the Multi-Species Conservation Program and the Border Highlands Local Coastal Program are not granted, significant inconsistencies would remain, resulting in a significant land use impact.	Same as No Action.		Not significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

TRAFFIC AND TRANSPORTATION (SEIS Section 3.5)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner’s Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
Impacts	No new terrestrial impacts identified that were not previously addressed in the 1994 Final EIS.	No significant impacts.		Site grading would require 90 trucks per day for up to 4 months to remove excess fill material. Traffic could be affected on Dairy Mart Road and at the trolley crossing of I-905. Truck traffic could cause a short-term significant impact.	No significant traffic impacts.	Same as No Action.		Because no construction traffic is expected on Mexican roadways, no significant impacts to major arterials, regional highways, or border access points have been identified. Truck trips into Mexico for sludge disposal have the potential to impact existing transportation infrastructure and traffic volumes. This impact is considered less than significant, because trucks will be operating during night hours after midnight.
Mitigation	None necessary.	Same as No Action.		A present worth analysis will be conducted to assess other cost effective approaches other than extensive grading. If other approaches are not acceptable, then traffic signage and controls will be implemented per Caltrans permit requirements.	Traffic controls such as signage, road monitors for crossing traffic, and provisions for assuring adequate sight distance at the access road and intersections would be implemented.	Same as No Action.		Mitigation measures will be the responsibility of Mexico.
Significance After Mitigation	No significant adverse impacts would result.	Same as No Action.		Unless an alternative approach is determined, there will be a significant short-term impact.	No significant adverse impacts would result.	Same as No Action.		Mexico will be responsible for mitigating to a level of insignificance.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE (SEIS Section 3.6)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner’s Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
Impacts	The operation of the SBIWTP would exert a positive economic effect on the local and regional economy by preventing dry-weather sewage flows into the U.S. and reducing contamination and quarantine of lands previously affected by dangerous levels of sewage.	Same as No Action.						The proposed project alternatives are not anticipated to affect the present or future socioeconomic characteristics of the Tijuana area.
Mitigation	None necessary.	Same as No Action.						None required.
Significance After Mitigation	No significant adverse impacts would result.	Same as No Action.						Not significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

PUBLIC HEALTH AND SAFETY (SEIS Section 3.7)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner's Mesa Site	Advanced Primary Treatment Only	Partial Secondary Treatment	Impacts to Mexico
Impacts	<p>Reduction of mosquito breeding in the Tijuana River associated with sewage flow from Mexico.</p> <p>Prevention of dry-weather sewage flow into the Tijuana River valley may lessen the frequency of beach quarantines. However, contamination and beach closures could persist.</p> <p>Hazardous substances used to treat pathogens could pose a public health threat if accidentally released.</p> <p>Concentrations of pollutants of concern may exceed California criteria in processed sludge. Thus, a significant potential human health risk exists during the processing and loading of sludge onto trucks.</p>	Same as No Action.		<p>Same as No Action, with the following additions:</p> <ul style="list-style-type: none">• pathogens in the effluent are not expected to exceed Ocean Plan limits and would not require disinfection;• design elements would prevent mosquito breeding conditions at the treatment ponds; and• secondary sludge may exceed California criteria for hazardous waste due to high concentrations of chromium, copper, lead, mercury, and nickel. However, of all alternatives, this alternative may produce the least amount of hazardous sludge and would not produce hazardous daily sludge from the primary facility.		<p>Same as No Action, with the following additions:</p> <ul style="list-style-type: none">• sludge might exceed California hazardous waste limits for selenium, but not chromium; and• a potential exists for coliform levels to frequently exceed Ocean Plan limits at depth in kelp beds, which could result in health risks to divers.	<p>Same as No Action, except for the following addition:</p> <ul style="list-style-type: none">• the potential for coliform exceedances in kelp beds is similar to the Advanced Primary Treatment Only alternative, although not as frequent.	<p>Same as No Action, with reductions in mosquito vector breeding hazards benefiting Mexico as well as the U.S.</p> <p>Pollutant concentrations in processed sludge may exceed Mexican criteria for hazardous waste designation. Consequently, human health risks exist from the full or partial secondary alternatives from inadvertent exposure to sludge during the transport and disposal of sludge.</p> <p>A significant impact could occur if a spill along this route were to cause an inadvertent exposure.</p>
Mitigation	<p>If coliform levels exceed limits, emergency disinfection and notification would be implemented.</p> <p>A Risk Management Program would be prepared for the storage of flammable and toxic materials, to prevent potential injury to workers.</p> <p>Training of personnel, and hazardous waste procedures would be implemented, including wearing protective gear, hazardous waste record keeping, designated restricted access areas, and</p>	Same as No Action.		<p>Same as No Action, with the following additions:</p> <ul style="list-style-type: none">• project design features would mitigate vector breeding;• establish a monitoring program to track the concentrations of metals and toxic organic compounds in the settled sludge; and• workers would be required to wear protective gear, including respirators during air-during operations of sludge until air monitoring determines that there is no risk.	<p>Same as the Hofer Site, with the following addition:</p> <ul style="list-style-type: none">• sludge transport would occur in Caltrans approved vehicles and according to hazardous waste transport requirements; and• if the sludge is not air dried, but must be dredged, then the sludge slurry would also be returned to the SBIWTP by trucks.	<p>Same as No Action, except there would be a higher need for emergency disinfection.</p>	<p>Same as No Action, except there would likely be a need for emergency disinfection and notification.</p>	<p>Sludge transport must be conducted according to Mexican standards for hazardous waste, and must be accompanied by proper documentation and signage, contained appropriately, and handled by trained workers. Traffic warning signs would be installed to prevent rear-end collisions at the access road that could cause a spill. Additional measures could be instituted once the disposal site in Mexico is identified.</p>

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

PUBLIC HEALTH AND SAFETY (SEIS Section 3.7)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner's Mesa Site	Advanced Primary Treatment Only	Partial Secondary Treatment	Impacts to Mexico
	signage to inform workers of the risk.							
Significance After Mitigation	With the incorporation of the above mitigation measures, impacts will be reduced to a less than significant level.	Same as No Action.				Same as No Action, except that disinfection would occur as a reactive measure, the impact by potential coliform exceedances is not fully mitigable and therefore remains a significant impact.		The mitigation measures would reduce impacts to a less than significant level.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

SCENIC, VISUAL, AND RECREATIONAL RESOURCES (SEIS Section 3.8)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner’s Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
Impacts	No new scenic, visual, and recreational impacts identified that were not previously addressed in the 1994 Final EIS.	No significant impacts.			Development of a secondary treatment pond system on Spooner’s Mesa would conflict with the County of San Diego’s plan to use the whole of Spooner’s Mesa for park land. Beneficial impacts would occur by improving coastal water quality.	Same as No Action, with the following addition: <ul style="list-style-type: none">effluent discharge to the SBOO would be of less quality since no/only partial secondary treatment would occur. A potential exists for divers in kelp beds at depths to encounter coliform levels that exceed water quality limits during several months of the year.		The proposed project alternatives would not produce an appreciable change in scenic or visual resources. Construction and implementation of the proposed alternatives are not anticipated to affect recreational resources in the Tijuana area.
Mitigation	None necessary.	Same as No Action.			Same as No Action, with the following addition: <ul style="list-style-type: none">if part of the top of the mesa became park land, landscaping would be improved to shield the public’s view of the treatment plant.	Same as No Action, with the following addition: <ul style="list-style-type: none">if coliform levels exceed limits, disinfection would be provided, and signs and notices would be posted no notify divers.		Same as No Action.
Significance After Mitigation	No impacts to scenic, visual, and recreational resources would occur under this alternative.	Same as No Action.			No significant impact if development of park lands were coordinated to optimize the public’s enjoyment of the mesa and views to the west.	The impact of coliform levels may be significant if occurrences are frequent.		Same as No Action.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

AIR QUALITY (SEIS Section 3.9)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner's Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
Impacts	Construction activities could increase dust levels. Failures in aeration or pumping equipment could result odors from anaerobic conditions on the water surface at the treatment plant. As designed, a redundant power supply and back-up pumps and aerators would mitigate these risks. This alternative may be potentially susceptible to toxic loads that reduce beneficial bacteria and reduce treatment levels, causing episodic odor occurrences.	Same as No Action, with the following addition: <ul style="list-style-type: none">the flow basin could create odors if not drained on a daily basis as required under normal operating procedures.	Same as No Action, with the following addition: <ul style="list-style-type: none">surface soils contain elevated concentrations of heavy metals and a few organic compounds. While not hazardous, the potential for “hot spots” exceeding hazardous concentration limits exists. Soil from any “hot spots” would require special handling and disposal, requiring extra dust control measures and trucks.	Same as Activated Sludge with Expanded Capacity, with the following addition: <ul style="list-style-type: none">multiple ponds provide for increased detention and dilution of influent that reduce the impacts of episodic toxic loads more effectively than for the Activated Sludge and No Action alternatives.	Same as No Action, with the following addition: <ul style="list-style-type: none">the third set of ponds at the treatment facility are not aerated, and may experience annual “seasonal overturn,” which can cause bottom sediment to rise and cause odors unless mechanical aeration is applied.	No significant impacts.	Same as No Action.	Air quality and odor impacts to Mexico are considered insignificant because upsets at Pump Station One in Mexico upsets would likely occur infrequently and the distances to receptors is about 1,300 feet.
Mitigation	Construction grading activities would include watering to reduce fugitive dust emissions and other dust suppression techniques. Construction equipment would use low sulfur/low nitrogen diesel fuels. Rideshare and carpool programs would be established among employees to minimize air emissions and odors. Redundant power supplies and back-up pumps and aerators would be used to mitigate odor emissions. A pretreatment program would be instituted to reduce the concentration of toxic compounds that could create odors.	Same as No Action with the following addition: <ul style="list-style-type: none">a wash-down system is included in the design to control the build-up of scum and algae that could produce offensive odors; anda cover would be constructed over the basin if odors become objectionable.	Same as No Action.	Construction grading activities would include watering to reduce fugitive dust emissions and other dust suppression techniques. Construction equipment would use low sulfur/low nitrogen diesel fuels. As designed, redundant power supplies and back-up pumps and aerators would be used to mitigate odor emissions. Adequate surface aeration will prevent odors from pond water surfaces.		None required.	Same as No Action.	None required.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

AIR QUALITY (SEIS Section 3.9)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner's Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
Significance After Mitigation	Episodic and localized emissions could occur as a result of operating practices or from specific climatic conditions. Impacts would be infrequent and of short duration.	Same as No Action.				Not significant.	Same as No Action.	Not significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

GEOLOGY (SEIS Section 3.10)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner's Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
Impacts	No new geological impacts identified that were not previously addressed in the 1994 Final EIS.	Same as No Action.	Same as No Action, with the following addition: <ul style="list-style-type: none">potentially compressible soils may be present in some areas of the site.		Although no currently active faults would affect the site, ground shaking from an earthquake on a regionally active fault could affect this site.	Same as No Action.		No impacts.
Mitigation	None necessary.	Same as No Action.	Same as No Action, with the following addition: <ul style="list-style-type: none">deep dynamic compaction would be necessary if any areas are underlain by compressible soils.		Following the most current design parameters of the Uniform Building Code and Structural Engineers Association of California would reduce the effects of seismic shaking.	Same as No Action.		None required.
Significance After Mitigation	No impacts to geological resources would occur under this alternative.	Same as No Action.	Impacts would be reduced to a level that is less than significant.			Same as No Action.		Not significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

NOISE (SEIS Section 3.11)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner's Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
Impacts	No new noise impacts not identified in the 1994 Final EIS.	No significant noise impacts.			Same as Activated Sludge with FEB, with the following addition: <ul style="list-style-type: none">construction noise impacts to sensitive wildlife may be present on Spooner's Mesa or the pipeline alignment.	Same as No Action, with the following addition: <ul style="list-style-type: none">no additional facilities would be built, therefore no new construction activities would be required and there would be no construction noise impacts.	Same as No Action.	No significant noise impacts anticipated from construction; the level of noise impacts from sludge hauling is uncertain, but expected to be insignificant.
Mitigation	None necessary.	Same as No Action, with the following addition: <ul style="list-style-type: none">all applicable California Occupational Safety and Health Act requirements would be met to protect workers during construction.				Same as No Action.	Same as Activated Sludge with Flow Equalization Basin.	None proposed.
Significance After Mitigation	No noise impacts would occur under this alternative.	No significant impacts would remain after mitigation.						The level of noise impacts from truck sludge hauling is uncertain but expected to be insignificant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE AFTER MITIGATION FOR ALL ALTERNATIVES

ENERGY CONSUMPTION (SEIS Section 3.12)	Activated Sludge/ No Action	Activated Sludge with Flow Equalization Basin	Activated Sludge with Expanded Capacity	CMA at Hofer Site	AIPS at Spooner's Mesa Site	Advanced Primary Only	Partial Secondary Treatment	Impacts to Mexico
Impacts	No significant energy consumption impact.	Same as No Action.			Although impacts from this alternative does not result in a significant energy resource impact, this alternative represents the highest level of operational energy consumption of the alternatives considered.	Same as No Action.		Energy impacts from the proposed alternatives would not result in or cause substantial expansion to or increases in: <ul style="list-style-type: none">the existing energy supply infrastructure,baseline conditions in peak power load and energy production;baseline conditions in fuel consumption required to construct the facilities, or to transport, handles, and dispose of sludge; oruse of energy resources in a wasteful or inefficient manner.
Mitigation	None necessary.	Same as No Action.			Measures that could be considered to reduce energy consumption include use of flow equalization or energy recovery. If this alternative is chosen, additional analysis would be conducted to identify how energy recovery could improve the energy efficiency of this alternative.	None required.		None required.
Significance After Mitigation	No impacts to energy consumption would occur under this alternative.	Same as No Action.			The potential for adverse energy resource impacts under this alternative is not significant.	Same as No Action.		Not significant.

TABLE ES-2
EVALUATION OF ALTERNATIVES BY ADDITIONAL CRITERIA

Impacts	Activated Sludge/No Action	Activated Sludge with FEB	Activated Sludge with Expanded Capacity	CMA at Hofer	AIPS at Spooner's Mesa	Advanced Primary Only	Partial Secondary Treatment
Water Quality	Meets Ocean Plan and secondary standards	Meets Ocean Plan and secondary standards	Meets Ocean Plan and secondary standards	Meets Ocean Plan standards and secondary standards	Meets Ocean Plan standards and secondary-equivalent standards	Meets Ocean Plan standards but will not meet secondary standards	Meets Ocean Plan standards but will not meet secondary standards
Public Health (in ocean only)	Meets pathogen limits	Meets pathogen limits	Meets pathogen limits	Meets pathogen limits	Meets pathogen limits	May exceed pathogen limits in kelp bed	May exceed pathogen limits in kelp bed
Nuisance-Odors	Low potential for odors	Low potential for odors	Low potential for odors	Low potential for odors	Low potential for odors	No additional odors	Low potential for odors
Vectors	No impact	No impact	No impact	No impact due to design features	No impact due to design features	No Impact	No impact
Sludge Generation							
-Quantity (per day)	9.0 trucks	9.0 trucks	9.0 trucks	5.2 trucks	5.2 trucks	6.7 trucks	8.4 trucks
-Quality	Potentially hazardous daily sludge	Potentially hazardous daily sludge	Potentially hazardous daily sludge	(6.7 for 3 months in summer) Potentially hazardous sludge from ponds in summer only	(6.9 for 3 months in summer) Potentially hazardous sludge from ponds in summer only	Potentially hazardous daily sludge	Potentially hazardous daily sludge

TABLE ES-2
EVALUATION OF ALTERNATIVES BY ADDITIONAL CRITERIA

Impacts	Activated Sludge/No Action	Activated Sludge with FEB	Activated Sludge with Expanded Capacity	CMA at Hofer	AIPS at Spooner's Mesa	Advanced Primary Only	Partial Secondary Treatment
Acreage	Within current SBIWTP site	Within current SBIWTP site	Will require purchase of Hofer property	Will require purchase of Hofer property	Will require purchase of Spooner's Mesa property	Within current SBIWTP site	Within current SBIWTP site
Timeliness ¹	4.5 years	4.5 years	4.5 years	3.5 years	5.5 years	3 years	7.5 years
Cost							
-Capital	\$66m	\$70.1m	\$75.7m	\$21.6m	\$56.7m	\$0m	\$47.7m
-O&M	\$5.3m	\$5.3m	\$5.3m	\$2.9m	\$5.5m	\$2.1m	\$4.4m
-Other	\$ -	\$ -	\$ -	\$776m	\$2.5m	\$ -	\$ -
-Present Value ²	\$ 200.7m	\$206.2m	\$214.1m	\$93.8m	\$199.6m	\$48m	\$157.8m
Expandability ³	Within SBIWTP and Hofer sites	Within SBIWTP and Hofer sites	Within SBIWTP and Hofer sites	Within SBIWTP site and with replacement of some ponds with activated sludge on the Hofer site	Any secondary process on SBIWTP and Hofer sites	Within SBIWTP site only	Within SBIWTP and Hofer sites

¹If certification by the Border Environment Cooperation Commission is required , additional time will be necessary.

²20-year present value

³Any expansion is conditional on a request by Mexico.